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ABSTRACT

Two wall systems and a compatible wall-hung furniture system are introduced for offices functionally designed to meet the differing needs of college faculty (e.g., storage cabinets for housing archeological artifacts, extensive bookshelves for law professors, etc.). Offices are constructed of molded panel partitions (installed easily in buildings old or new) from which hang shelves for books or storage, cabinets, desks, work surfaces, blackboards or bulletin boards, and a variety of files. The components are interchangeable, and are composed of relatively small parts for easy transportation. Illustrations show the system components and various arrangements. (Author)

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THE FACULTY OFFICE

A SYSTEM OF FURNITURE & STRUCTURE

SPONSORS

UNIVERSITY OF PENNSYLVANIA

TEMPLE UNIVERSITY

UNIVERSITY OF PITTSBURGH

EDUCATIONAL FACILITIES LABORATORIES

DESIGNERS

RAYMOND LOEWY/WILLIAM SNAITH

EA 005 301

Two Years ago the Educational Facilities Laboratories, Inc. said:

"TRADITIONAL FURNISHINGS, A FUNCTIONAL FLOP. The standard desk, the swivel chair, the file cabinet, and the clothes tree—traditional furnishings of the faculty office—never really performed the variety of functions demanded of them. But they fail, now more than ever, as specialties intensify and as the faculty office emerges as many things: research lab, private library, viewing center, counseling room, committee space—as well as the home away from home, the sanctum sanctorum, the traditional retreat for the professor and his belongings.

"But the problem is how to get, at a reasonable price, office equipment adaptable enough to meet the work and storage requirements of geographers (maps), geologists (rocks), biologists (microscopes), anthropologists (artifacts), musicologists (phonographs), and others, who must also have access to varying quantities of chalkboard, tackboard, slides, and the hundreds of teaching and research aids that make up the modern educational armory.

"Clearly, standard commercial office furniture won't do the job. Even where it does offer versatility, the price is high. . . . Besides, the universities need a system of furnishings that can be set up or altered by the janitorial staff or faculty members themselves, without the need for specially trained workmen. They also want the component parts to be stackable for easy warehousing and to fit a trolley for an average size elevator.

"When all these conditions are put together, it adds up to the need for invention of a whole new system of designed and manufactured products that will satisfy specific performance and price requirements. . . .

"In addition to the requirements of price, versatility, easy storage and assembly, the final system will have to be usable in renovated or converted old buildings, as well as in new construction. For this, the components will have to be adaptable to varied ceiling heights, to be hung either on load-bearing walls or demountable partitions, and to be freestanding. Freestanding options have to be available, but the wall-hung mode is expected to be the prevailing arrangement. (In a small office . . . furniture on the wall instead of the floor is equivalent to adding another 20 sq. ft. of space.)

"If development of the system is successful, faculties will never have had it so good. Each individual will be able to command his own personal order in his own space, selecting the furniture and equipment items he needs or wants from a catalog of parts. Almost everything that might be needed should be included among the components. . . .

"For additional information, contact Theodore Bowman, University Architect, University of Pittsburgh, Physical Plant Division, Pittsburgh, Pa. 15213."

(COLLEGE NEWSLETTER 10, SEPTEMBER 1970)

[The EFL quoted above is a nonprofit corporation established by the Ford Foundation to help schools and colleges with their physical problems. Their newsletters are available on request from EFL, 477 Madison Avenue, New York, New York 10022.]

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The Problems

THE NEED TO FIND A UNIFORM SYSTEM OF OFFICE CONSTRUCTION AND FURNISHING FOR COLLEGE AND UNIVERSITY BUILDINGS, OLD AND NEW

Increased demand on space and the very high cost of building construction have had a serious and regrettable effect on college and university offices. Teachers have had to share office accommodations or be crowded into small cubicles with temporary partitioning, with little or no room for books and other resources for their own study and research, and without comfortable and attractive space for conference with fellow teachers or students.

Privacy and security have been unsatisfactory. Most furniture has been oriented more toward business, rather than the academic and individual requirements of a faculty teaching in many different fields of learning.

Altering and changing buildings, the demolition of walls—dust, noise, debris—bringing in large panels upstairs or on elevators, through corridors, often while classwork continues, are both costly, inefficient, and disruptive.

A partition that fills the needs of the educational institution does not seem to exist. Also, the function of the faculty office and the needs of the occupant appear to have been neglected by the educational institutions and the furniture industry.

Objectives

A SYSTEM TO MEET THE DIVERSIFIED NEEDS OF FACULTY AND THE BROAD OBJECTIVES OF THE INSTITUTION

Flexible to adapt to changing conditions within university disciplines. Flexible to adapt to changed use of building.

Economically competitive with existing building and furniture systems.

Support system simple enough to allow alteration after installation by unskilled labor.

Furniture usable with an existing wall.

Partition adjustable to varying ceiling heights.

Durable, easily stored, and easily transported within university buildings.

Furniture to stack or nest.

Low maintenance costs.

Factory made finishes.

Method to conceal extension cords.

Aesthetically pleasing.

Questionnaire

To determine individual needs, a questionnaire was circulated to all faculties of the three sponsoring universities. The rate of response averaged out at close to 50 per cent. The answers indicated there is no typical office, and often the needs of different departments are so divergent that this study seemed justified.

The Sponsors

HOW THE CONSTRUCTION AND FURNISHING PROBLEMS WERE APPROACHED

Faced with the need to do something about our faculty offices, three universities—Pittsburgh, Temple, and Pennsylvania—sponsored this report, with the collaboration and support of the Educational Facilities Laboratories, Inc., a nonprofit corporation established by the Ford Foundation to help schools and colleges with their physical problems. Technical services have been provided by the Facilities Development Staff, Office of Education, Department of Health, Education, and Welfare.

The Designers

Raymond Loewy/William Snaith, Inc. was engaged to study the feasibility of creating an office system designed specifically for college and university faculty.

Proposed Answer

THE SOLUTION:
TWO WALL SYSTEMS AND WALL-HUNG FURNITURE

This report presents the concept evolved from the study of the diversified needs and the objectives outlined above: *two wall systems* and a *compatible wall-hung furniture system.*

Some Characteristics

VERSATILITY

Although designed with a minimum of basic components, the furniture and wall systems can satisfy a maximum variety of office furnishing needs, such as law, archeology, engineering, sciences, humanities, geography, music, and many others, including the range from austere to luxurious.

VARIETY

Further, because of the great potential for color, texture, and variety of arrangement available with the wall and furniture units, faculty members are free to express their own individual tastes.

The choice of wall-hung furniture and its arrangement combine individual faculty requirements with comfort and beauty. It can make the office a *unique* answer to the personal needs of the faculty member.

Patents Pending

The innovative features of all three systems have patents pending.

The sponsors were informed that if they did not seek patent protection, others might. Patent applications have been made.

The sponsors hope that the components of these systems will be manufactured by one or more firms and sold by the manufacturers.

45 feet of shelving
2 work surfaces
1 pedestal
1 30 x 30 storage
3 file drawers
1 pigeonhole
2 drawers 6" deep
1 pencil drawer
24 ft. of partition

Some Basic Office Units

The faculty office need not look, as it too often does, like an attic cluttered with castoff furnishings—nor be without enough space and storage room.

Here is an office of 120 sq. ft., with molded panel partitions installed easily in buildings old or new, from which hang shelves for books or storage, cabinets, a desk, a work surface, a blackboard or bulletin board, and a variety of files.

Saving Space

If all these stood on the floor, they would leave little or no space for the chairs the office requires, and would cover the entire lower part of the walls.

Portability

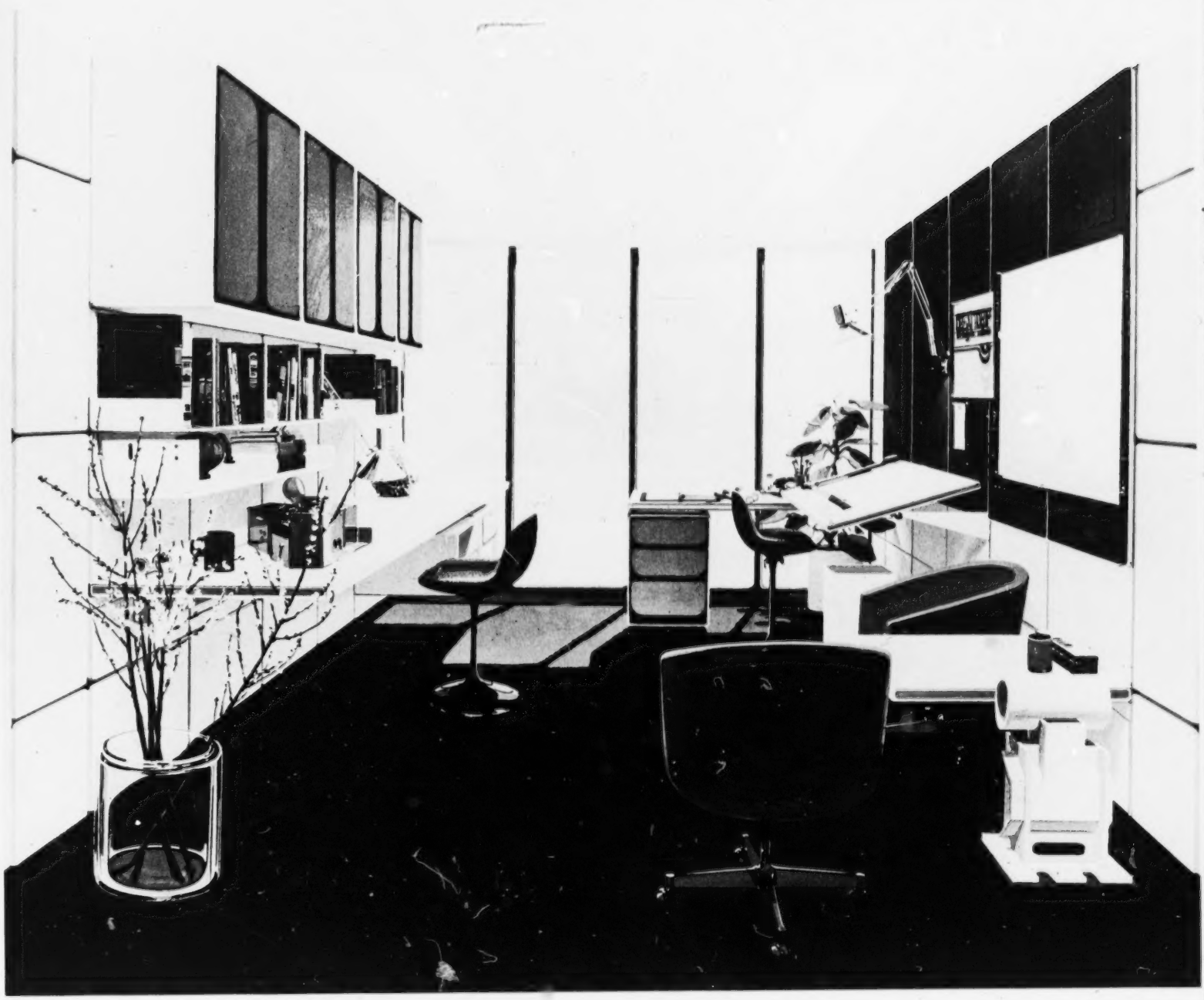
All those furniture items can be placed on a single dolly, and all the wall panels of both partitions can also be placed on a single 30 in. x 60 in. dolly.

A Complete Office

When chairs are added and when the individual faculty member adds his personal objects, his office can be as attractive and comfortable as the living room or library at home—and yet as efficient as a working laboratory or a teacher's study. And all in at least 25 per cent less space than is possible with freestanding furniture.

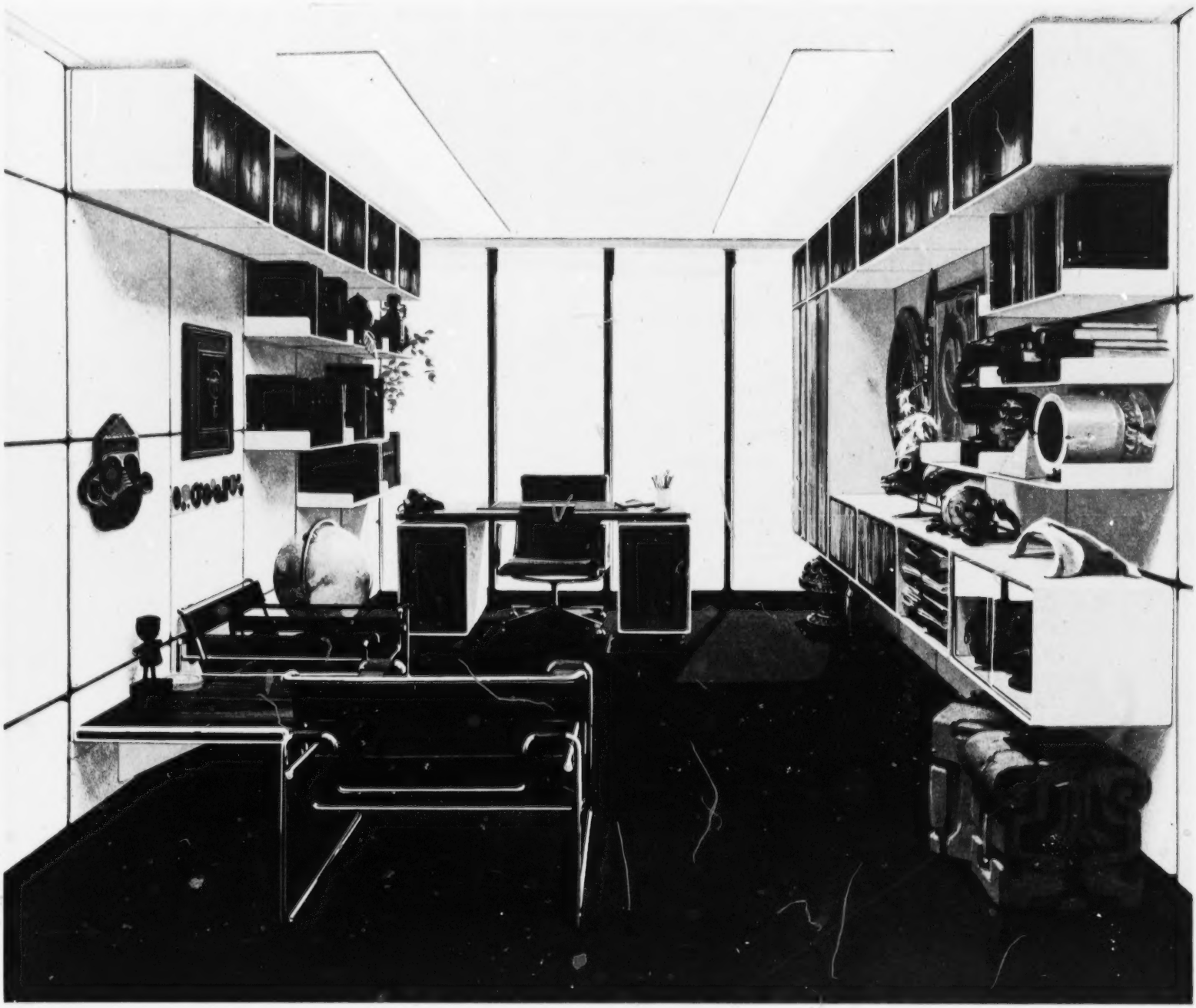
Engineering

Wall-hung display units for drawings and maps, book shelves, storage cabinets, work surface room-length, with floor space for extra chairs and a movable tilt drawing board. A room also excellent for an editor or writer.



Archeology

Materials infrequently used can be stored in cabinets as high as the ceiling, and the artifacts can be displayed on tables and shelves, or locked in cabinets with transparent doors.

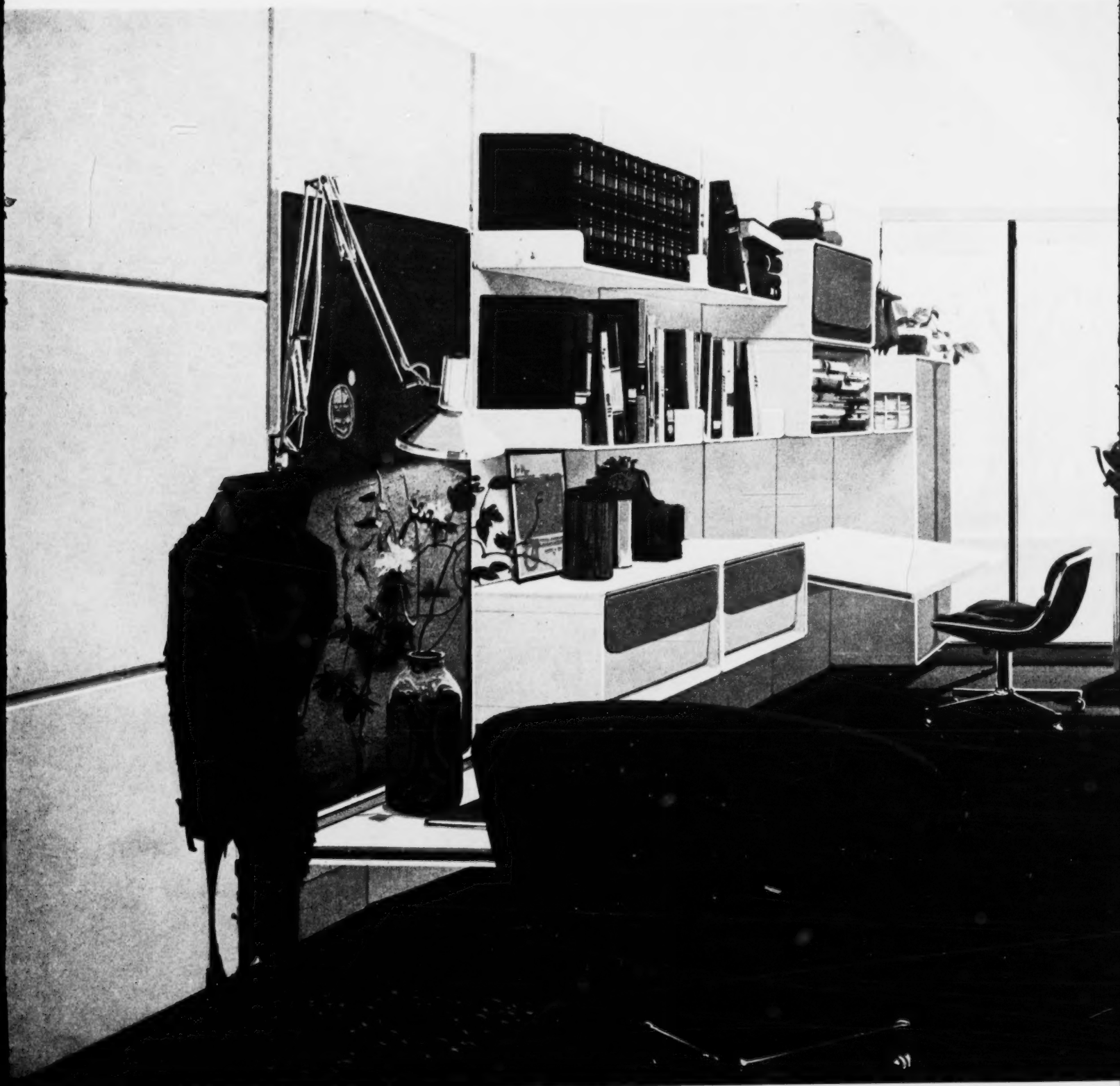


Physics

Blackboard space, wall-hung cabinets, book shelves and files—plenty of floor room for chairs and conference with a fellow teacher or students.

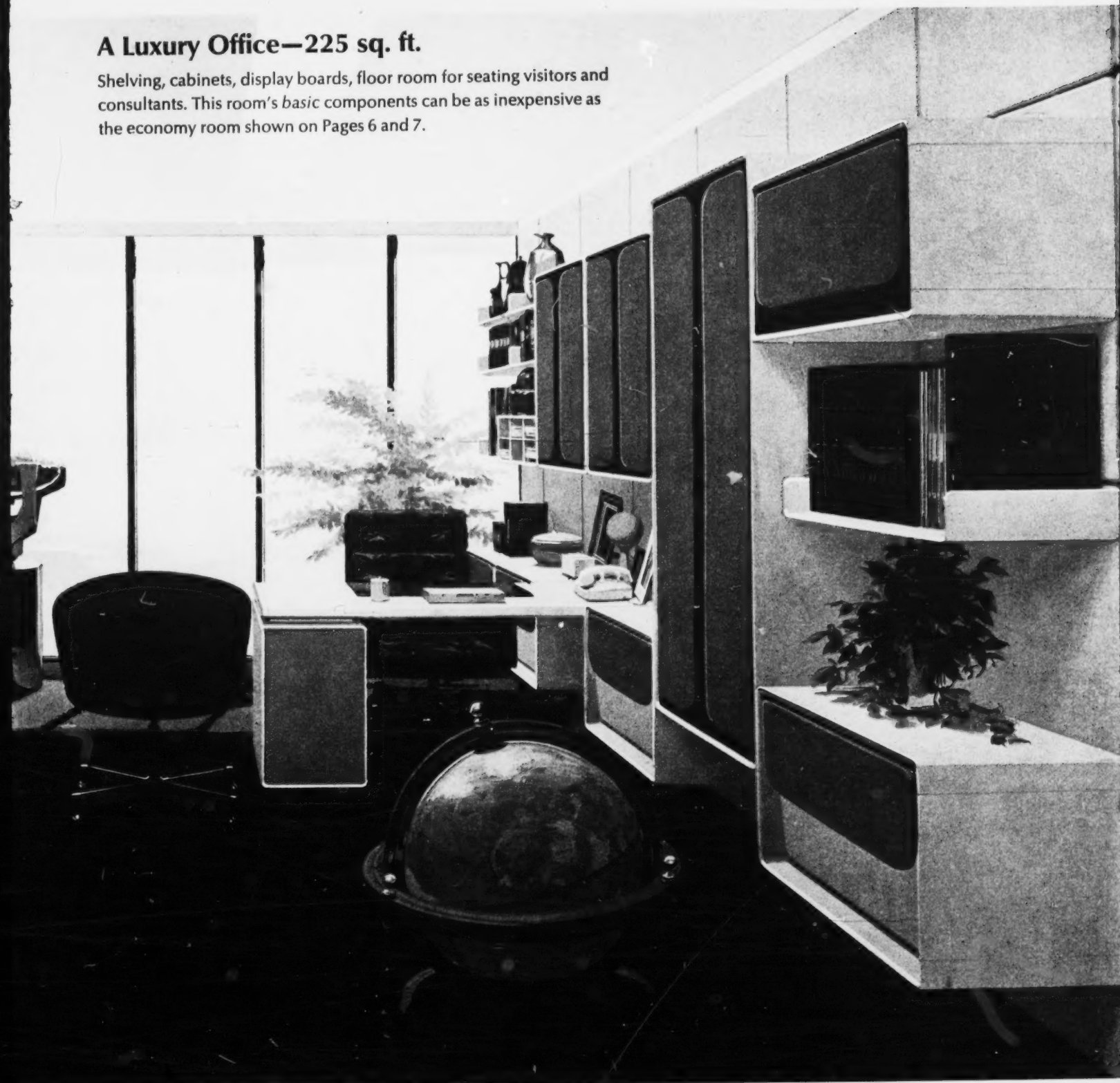
Law

Extensive shelf space for books, floor space for chairs, tables, desk.



A Luxury Office—225 sq. ft.

Shelving, cabinets, display boards, floor room for seating visitors and consultants. This room's *basic* components can be as inexpensive as the economy room shown on Pages 6 and 7.



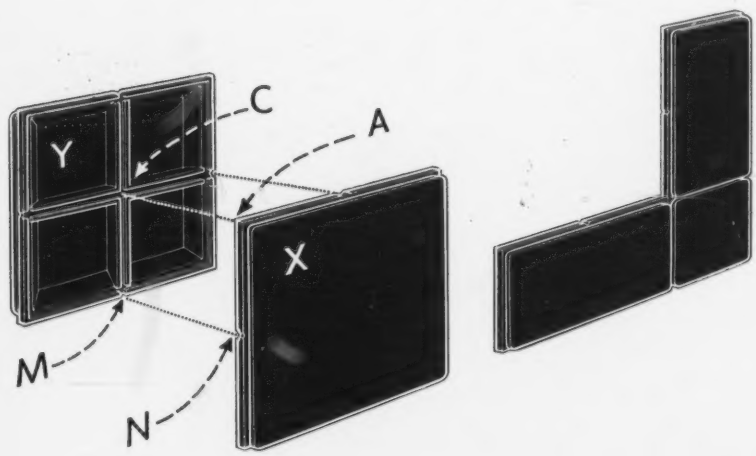
Molded Panel-Wall System

PARTITION COST

Experiments indicate that the labor cost (including profit and overhead) to erect the wall is forty cents a sq. ft. The target for our total costs is two dollars and fifty cents a sq. ft.

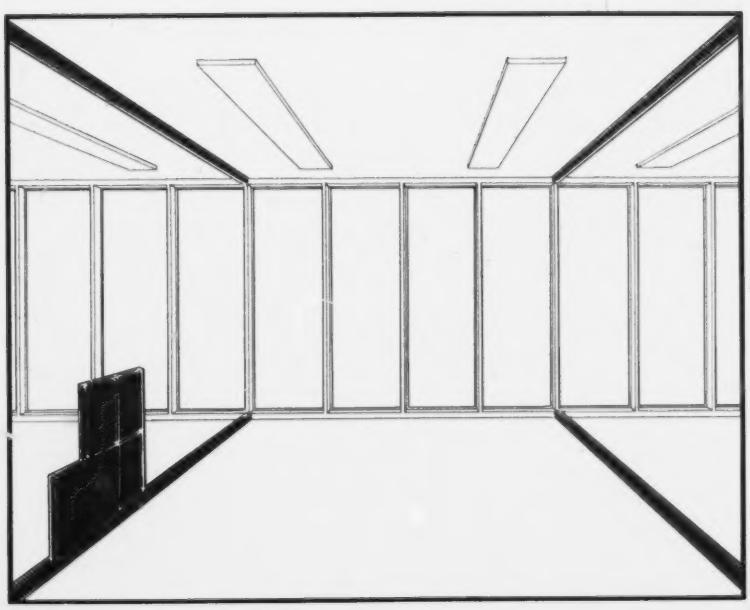
The molded panel-wall system proposes the use of preformed panels, which interlock horizontally and vertically and which contain integrally molded furniture brackets and service runs. The system requires no studs; is simple to install, remove, and alter; can be used in old or new structures for full or partial partitions; and has virtually unlimited flexibility.

A plywood mock-up, 12½ ft. long x 10 ft. high, of the modular wall system was made at the University of Pittsburgh. This demonstrated the great structural stability and strength of the system. It was found, also, that this partition could be erected in almost one-half the time of the many partitions in use at the University.



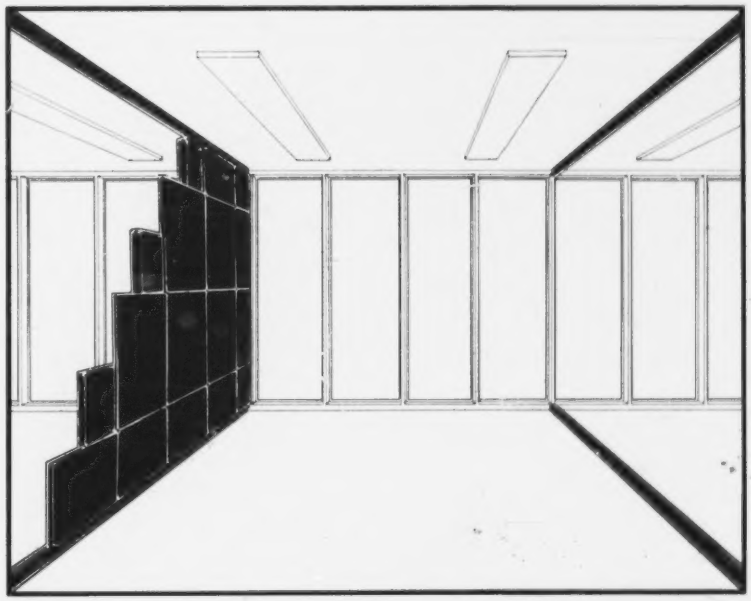
Full module panels are 30 in. square. Half panels are 15 in. x 30 in. Both are factory finished on one side and grooved for interlocking on the other. The panel sizes allow easy stacking on dollies for transport through existing doors, elevators, and hallways.

Panel X has its finished side visible and Panel Y its back or interlocking side visible. The panels are placed together so that A (the corner of panel X) falls at C (the center of panel Y). The notches at M and N will then form the beginning of a channel through the two panels. After a third panel is butted to the base of panel Y and a fourth is butted to the left side of panel X, the hole MN will accommodate a fastening device. Thus, every panel is secured at four points, as well as being interlocked back-to-back to four other panels. Fastening devices are not visible on the finished wall surface.

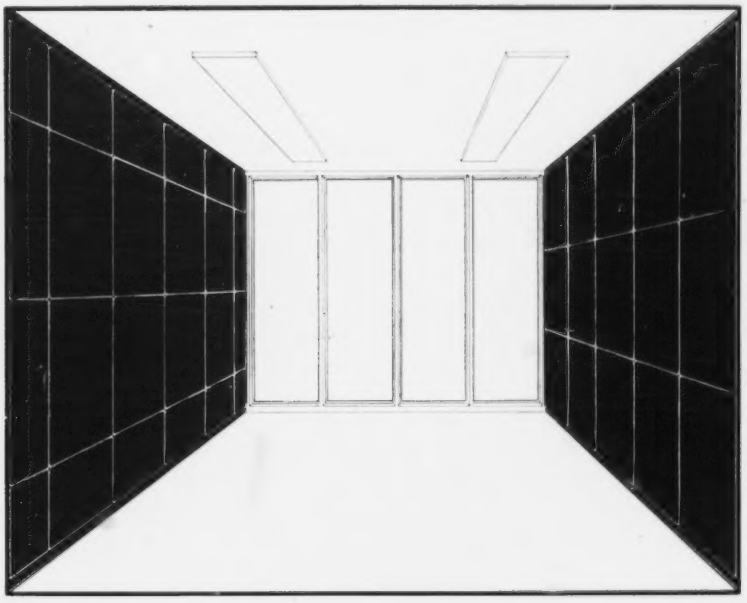


Metal channels are attached to the floor and ceiling where the wall is wanted. In a new building fastening devices can be preset in the floor.

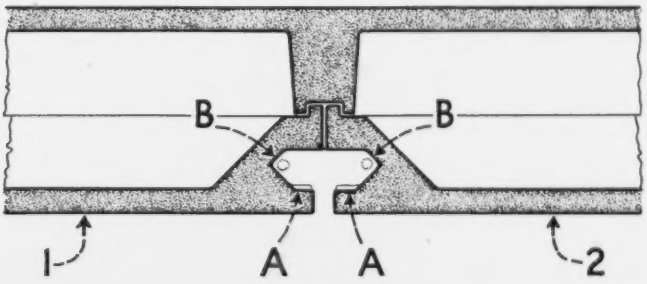
To begin the wall assembly, a full module panel is set in the metal channel. A half-panel is then off-set fifteen inches horizontally and interlocked back-to-back with the full panel by the mating of projections and grooves.



The wall is the thickness of two panels, interlocked back-to-back and secured with a fastening device. The strength of the wall results from the offset placement of these panels. This offset arrangement makes it possible to remove individual panels at will without lessening the strength of the wall. An opening can easily be made by removing full panels on one side, and by replacing full panels with half panels on the other side.

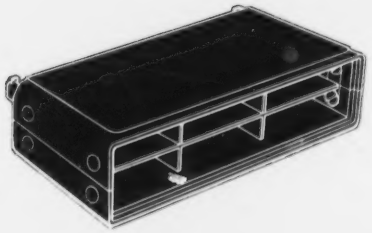


A finished wall presents a different panel arrangement on each side. In this illustration, the wall on the left shows how the other side of the right hand wall would appear. In any given room, both walls could be similar. Assembly or disassembly causes no appreciable dust, noise, or interference with surrounding areas or activities.

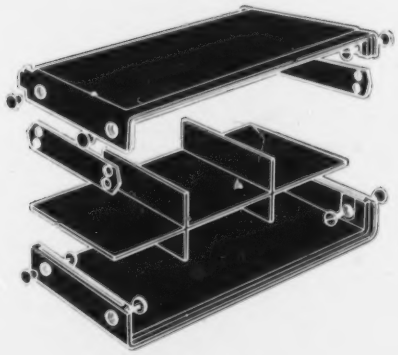


The channel formed by two panels (No. 1 and No. 2) butting together contains concealed bracket supports, A and space, B suitable for telephone and electrical cord runs. In this space telephone and electrical extension cords can reach any point on the wall. They will not interfere with the operation of the bracket support system.

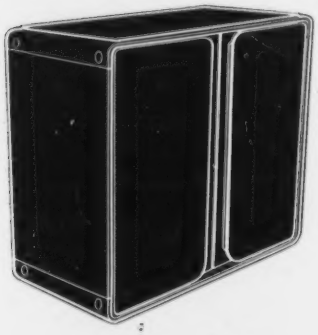
The Furniture System



The pigeonhole or desk organizer is the smallest furniture unit. As such, it can be conveniently used to demonstrate the commonality of parts in the furniture system.

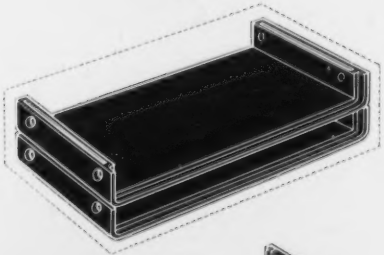


In an exploded view, the desk organizer is seen to consist basically of identical top and bottom units joined by two flat vertical joiner plates.

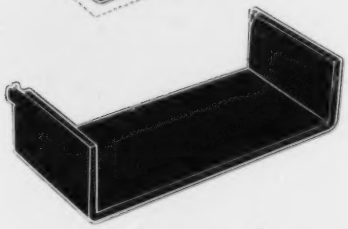


The 30 in. x 30 in. storage cabinet uses the same top and bottom pieces, but has larger vertical separators. This unit can contain adjustable shelves, shallow display trays, or be left empty for storing larger items. When security is desired, the unit can be locked and fastened to the wall panel.

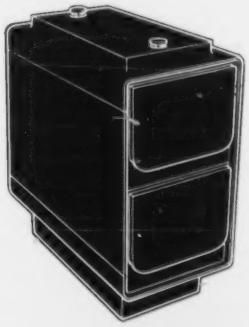
Other storage units are 30 in. x 60 in. and 30 in. x 15 in.



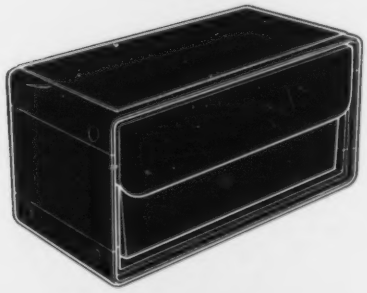
The top and bottom pieces of the preceding units will stack conveniently, as shown here. Dotted lines indicate size of package to ship a 30 in. x 30 in. storage unit.



A 30 in. book shelf to hang on the wall.

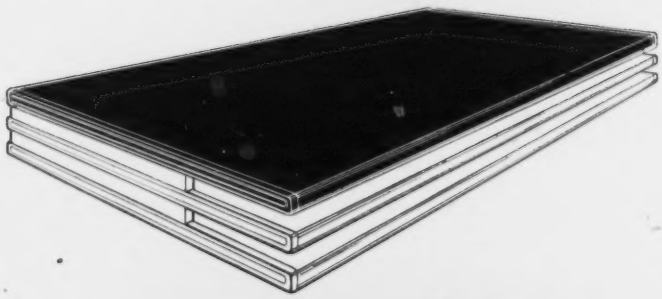


The pedestal file unit, for use with a separate work surface, is the only floor-standing unit. It will accommodate either four 6 in. drawers, two 6 in. drawers and one file drawer, or two file drawers. The identical top and bottom pieces of the pedestal file unit have also been designed so that they can be stored efficiently, without large voids.



The side-opening file cabinet is formed again from the same top and bottom pieces, but utilizes smaller vertical separators.

File drawers will also stack to avoid air storage. They will be of one-piece construction with integrally molded perimeter channels for folder hooks and drawer slide mounting.



Work surface 30 in. x 60 in. for use either on pedestals or supported on wall. They also can be mounted to provide storage for maps and drawings. Shown, opposite, below a work surface are two more work surfaces providing such storage. A 30 in. x 30 in. work surface for equipment can also be used as a coffee table.

Bracket support for work surfaces both 30 in. x 60 in. and 30 in. x 30 in. It can be placed at any height and can also support the work surface either flat or tilted.

The Furniture System—Its Support

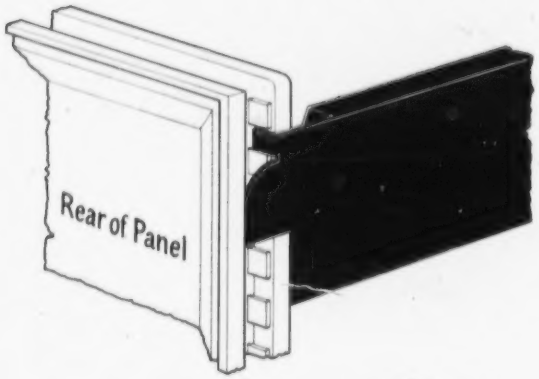
THE FURNITURE SYSTEM

This system has been conceived so that the various components can be combined and interchanged in a variety of ways to satisfy all but the most esoteric faculty needs. Indeed, the flexibility of the system is limited only by the user's imagination. For example, the typewriter surface might be placed near the floor to serve as a coffee table; cushioned, it could be a settee. Most units can be wall-hung. This will ensure greater ease of office maintenance and more efficient use of space. Seldom used material can be located near the ceiling.

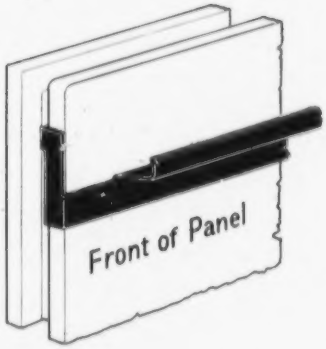
Furniture units have also been conceived so that the same parts can be used in many units, can be easily assembled, and require less storage space. Stacking or nesting of these parts will reduce the air storage to a minimum. Furniture units (as demonstrated below) can be attached to the wall without skilled labor or great effort.

Each unit is tilted slightly for insertion.

The bracket support is inserted wherever horizontal and vertical joints meet.



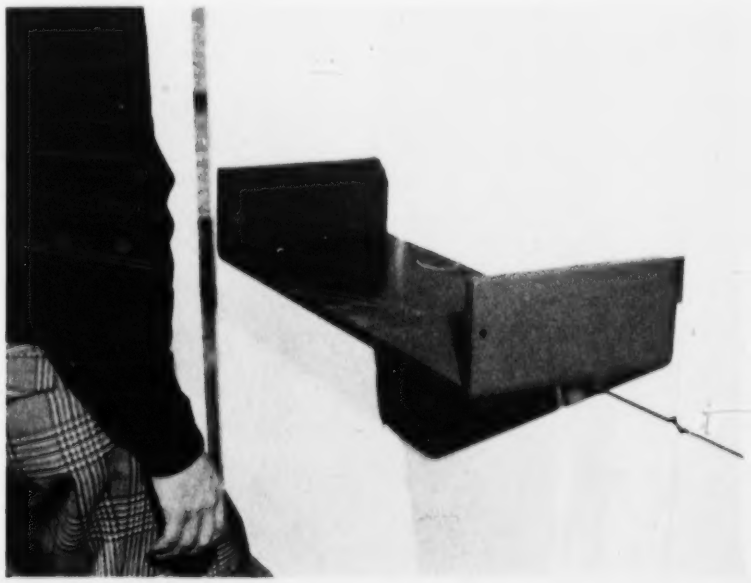
Here, the bracket tab of the furniture unit is shown locked into the bracket support teeth of the wall panel. This method of attaching furniture is also employed in the Modular Stud Wall System (pages 20, 21).



A corner of a wall panel is shown with part of a support bracket or hanger which is attached to the wall in the same way as the bookshelf. From it will hang the larger pieces such as the 30 in. x 30 in. or 30 in. x 60 in. storage cabinets. This makes it possible to place them at the top of the partition and to move them without tilting. Also from it can hang blackboards and chalkboards. And so several panels can touch each other to form continuous chalkboard of large size.

Still tilted, the unit is raised or lowered to the position desired. It can then be leveled in increments of 1 in. and will support over 300 lbs.

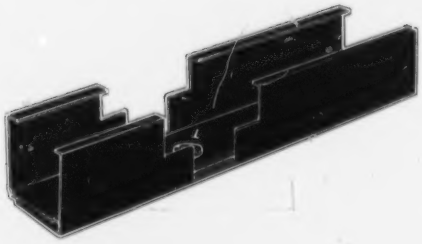
Returned to a horizontal position, the unit is now ready to use. The ease of installation makes adding, removing, or rearranging furniture a simple matter.



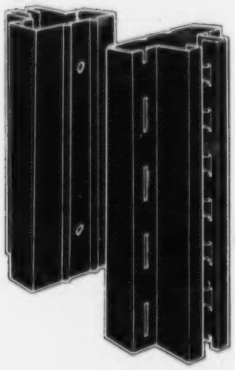
The Second System that Coordinates Furniture & Partition

A NEW PARTITION OF STEEL STUDS

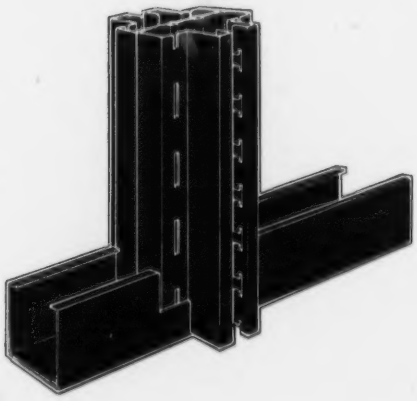
A steel stud partition is conceived to support all the furniture units in the same manner as the module panel wall. It is similar in appearance, except that the horizontal joints every 30 inches are not present. This partition system is proposed as an alternate to the molded panel. It employs materials and technology in current use and could be placed in production immediately upon completion of design work.



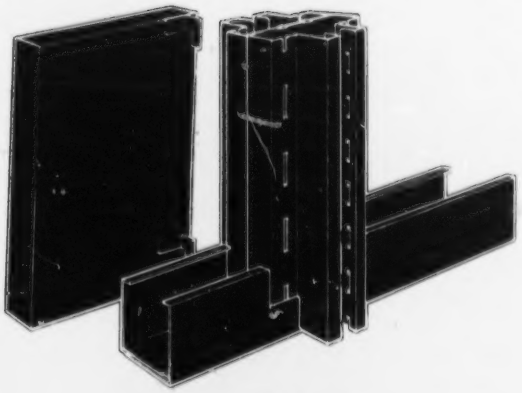
When the modular stud system is used to erect an independent, freestanding partition, metal angles are placed on the floor. Leveling is done with a shim.



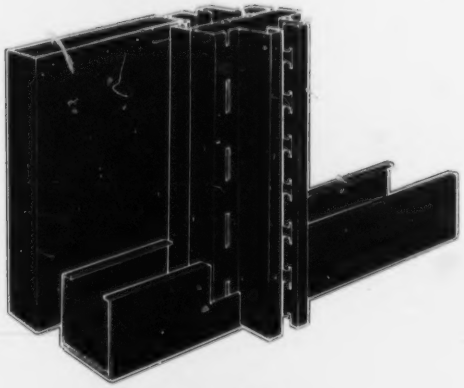
Two uprights are then fastened together, back-to-back.



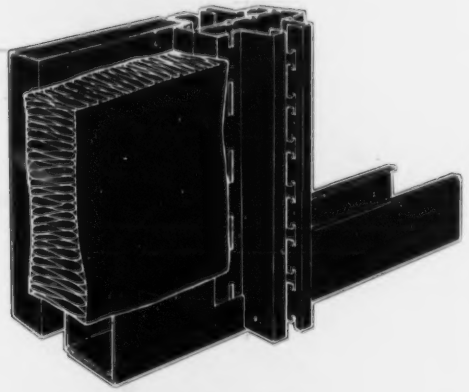
The uprights are then inserted in the cut outs of the floor angle.



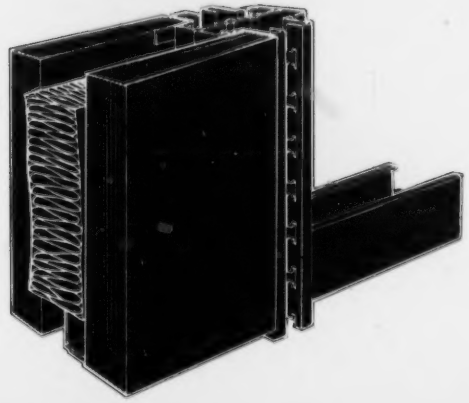
A wall panel is now attached to one of the uprights.



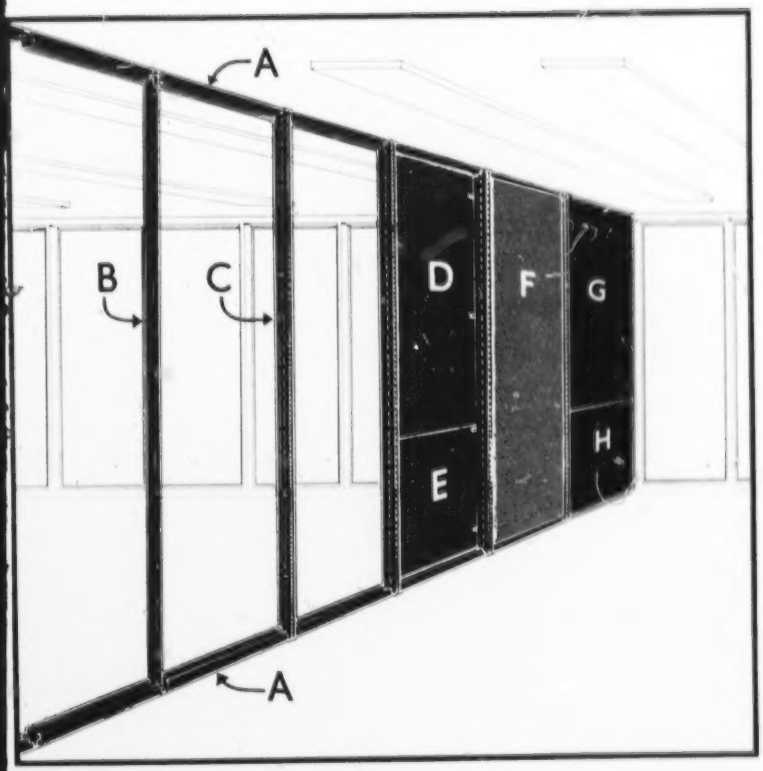
The wall panel is now in place . . .



. . . and the insulation core is placed against it.

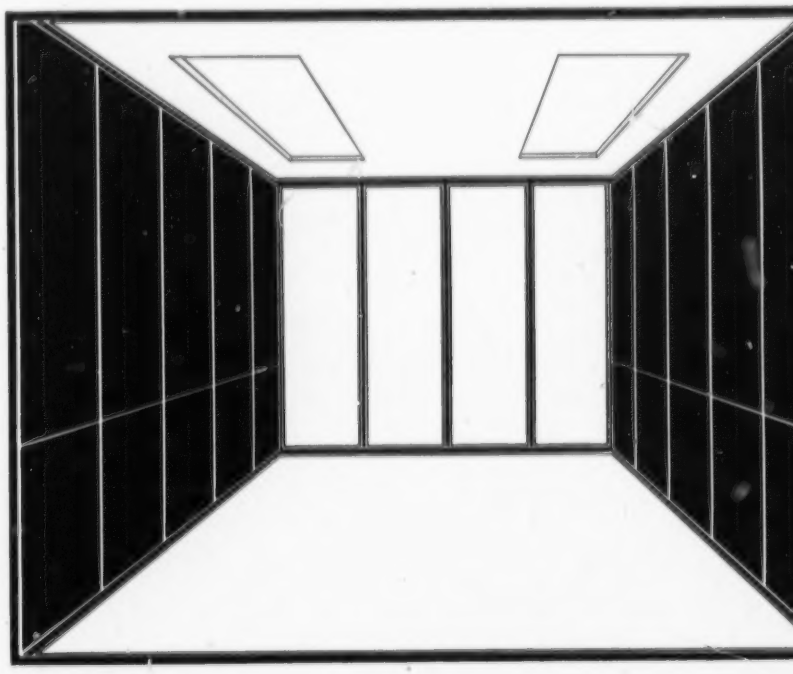


The independent partition wall is completed when a second panel is attached to the uprights. This compresses the insulation to provide increased stability, eliminate vibration, and reduce sound transmission through the partition.



The whole process of constructing an independent partition wall is illustrated here. First, the floor and ceiling channels are secured in place (A), and the uprights, fastened together, are inserted (B, C). Panels are attached to the back (D, E), and the insulating core applied (F). The partition is complete when panels are attached to the near side of the upright (G, H).

A completed wall with panels would look like this. It will be noted that, for an 8 ft. ceiling height, two panels are proposed in this system: one of 30 in. x 30 in., another of 30 in. x 60 in. This panel size limitation has been set to facilitate stacking and transport through existing doors and corridors. Added heights, when needed, can be obtained by a third panel precut to size or, if the ceiling is less than 10 ft., by using two 30 in. x 60 in. panels precut as necessary.



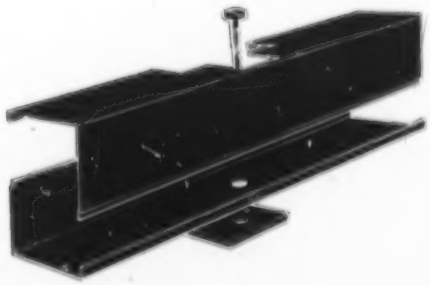
PARTITION COSTS

While this partition has the advantages of demountability, easy portability, and support for wall-hung furniture, it is not expected that it will prove to be less expensive than the proposed molded panel.

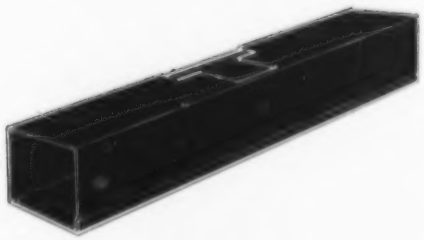
The Wall-Hung Furniture can be used on any wall

TO HANG FURNITURE ON AN EXISTING WALL

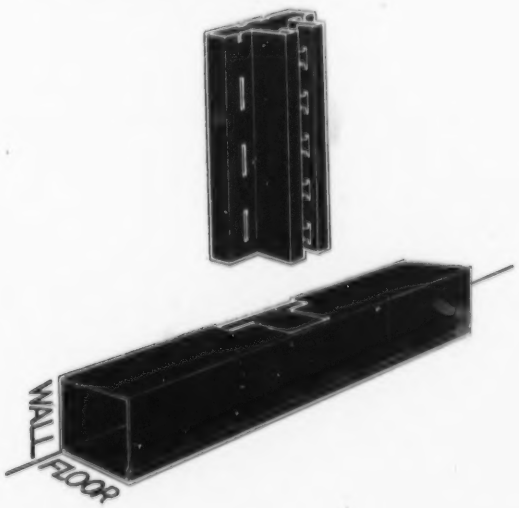
This support system is conceived to be used with any type wall including wood stud and wood lath and plaster. It also employs materials and technology in current use, all components being identical to these used in the "New Partition of Steel Studs" as previously described. The system is light and durable. It is simple to install and to alter after installation. The module is 30 in. to insure ease of transport and storage and to make it compatible with all furniture units.



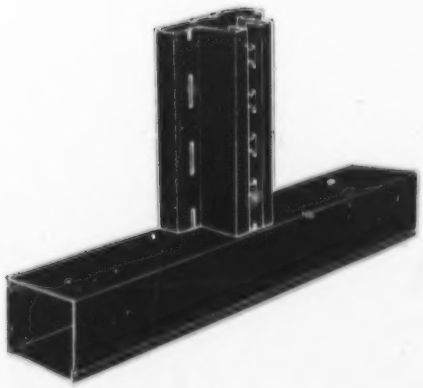
Basic to the system are floor and ceiling angle components which serve to stabilize and separate (30 in.) vertical studs. Each of these two horizontal members consists of identical L-shaped angles which are joined together in one of two configurations.



The configuration shown here would be used to attach the system to an existing wall. The angles would first be shimmed level and then secured in place at points determined by the structural arrangement of the existing wall, or they can be attached to the floor.

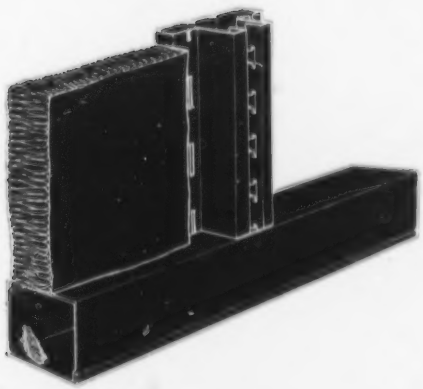


Once the floor and ceiling channels are secured, vertical studs are positioned and fastened to the angles.

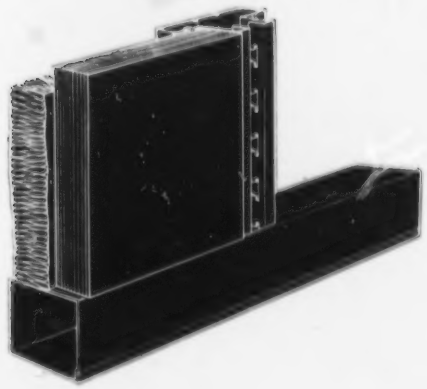


These studs contain concealed wall panel, furniture bracket supports, and two vertical service wire runs. By keeping the vertical stud independent of the wall, the loads of the furniture units applied to the stud are transmitted to the angles at the floor.

At this point the furniture can be added to the studs. The metal studs and angles would be painted to blend with the walls. If a renovation is desired, the following two steps can be followed to provide a wall similar to that shown on page 22.



When it is intended to use wall panels with this system, a pad of insulation is placed against the existing wall, as shown on the left in this illustration.



When the panel is added, it compresses the insulation. This increases the stability of the panel, eliminates vibration, and provides a finished wall surface.

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A majority of the faculties of the three Universities have indicated a desire for these components. The costs listed are target prices.

COMPONENT	SIZE	QUANTITY	COST
Work Surface	30" x 60"	2 @ 13	$26.00
File Drawers			
Immediate Access	Standard	1	25.00
Active Files	Standard	2 @ 25	50.00
Inactive Files	Standard	2 @ 25	50.00
Letter Drawer	6" Deep	1	20.00
Pigeonhole Organizer	7" x 30"	1	18.00
Book Shelf	9" Deep	50 Linear ft.	
Book Shelf	9"-12" Deep	0-25 Linear ft.	200.00
Blackboard	30" x 60"	1	10.00
Tack Board	30" x 60"	1	10.00
Enclosed Storage Units			
Paper and Books	30" x 30"	1	39.00
Clothing	30" x 60"	1	51.00
Typewriter Surface	15" x 30"	1	7.00
		Total Cost	$516.00

FURNITURE COSTS

The basic furniture illustrated in this brochure is conceived to compete with low cost steel furniture, which is now purchased as follows: (1971)

Double pedestal desk	$125
1 bookcase—5 shelves	45
1 four-drawer file cabinet	75
	$245

In contrast to this steel furniture costing $245, equivalent work and storage capacities could be furnished for $237 by selecting components from the list above. This assumes that manufacturers can meet our target prices.

CHAIRS NOT INCLUDED

In this work, no attempt has been made to design chairs. The chairs illustrated are in some cases reasonable in price and in others expensive.

To get more for the academic dollar is the aim of the sponsors.